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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/394,118 | 09/10/1999 | WILLIAM F. FOOTE | SUN1P250/P39 | 3725 |

22434 7590 11/13/2003

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| EXAMINER |
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VO, LILIAN

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| ART UNIT | PAPER NUMBER |
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2127

DATE MAILED: 11/13/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/394,118

Applicant(s)

FOOTE, WILLIAM F.

Examiner

Lilian Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☒ Claim(s) 1-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Claims 1 - 29 are presented for examination. Claims 30 - 37 have been cancelled.

Response to Arguments

2. Applicant's arguments with respect to claims 1 and 20 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

3. The indicated allowability of claims 15 and 28 are withdrawn in view of the new ground(s) of rejection set forth below.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 - 9, 13 - 23, 26 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Culbert (U.S. Pat 5,838,968) in view of Judge et al (U.S. Pat. 6,430,570, hereafter referred to Judge).

Regarding **claims 1 and 20**, Culbert discloses a method for managing resource usage of a particular resource by a set of related code (fig. 4, codes executed as tasks), the method comprising:

associating a resource indicator (fig. 2, resource indicator 220, col. 6, line 51 – col. 7, line 2,) with the related code that indicates an amount of resource usage of the particular resource by the related code (col. 6, line 63 – col. 7, line 2, maximum number of allocable units, 230, and the currently allocated units 240, col. 3, lines 20 – 58, “...keeping track of actual system resource utilization through periodic measuring by updating the current task utilization record to reflect the consumption of the of the plurality of system resources, and by using this information to allocate or deallocate resources from tasks in order to satisfy system resource requests”. In order for each task to perform its specific function, related code must be used to program each of the tasks. Hence, related code is considered inherently included in each of the task execution, which consume resources); and

updating (col. 7, lines 20 – 27, updates the usage value) the resource indicator when the related code increases or decreases its collective resource usage of the particular resource (col. 11, lines 36 – 44, memory use increases).

Culbert did not clearly specify the tasks are originates from the same source or owner. Nevertheless, Judge discloses of a Java application manager that responsible for resource management with downloading, execution and caching of multiple instances of the same application and/or of another application which request from the client (col. 3, lines 9 – col. 4, line 23, and col. 7, line 66 – col. 8, line 58). Therefore, it would have been obvious for one of ordinary skill in the art, at the time the invention was made to incorporate this teaching from Judge to Culbert’s invention so that resource usage from a particular source can be monitored for performance analyst.

Regarding **claim 2**, Culbert discloses a method as recited in claim 1 wherein the resource indicator's amount represents an absolute value of the resource usage (col. 7, lines 14 – 18, kilobytes needed for memory 100).

Regarding **claim 3**, Culbert further discloses a method as recited in claim 1 wherein the resource indicator's amount represents a proportional value of the resource usage (col. 7, lines 20 – 27, maintaining current information based on actual resource usage, col. 8, lines 42 – 46, updated with actual resource usage measurements).

Regarding **claims 4 and 21**, Culbert discloses a method as recited in claims 1 and 20 further comprising:

associating the related code with each resource portion of the particular resource that is allocated for the related code (abstract: The system and method manage an arbitrary set of system resources and globally optimize resource allocation across system tasks in a dynamic fashion, according to a system specified performance model. Resource allocated to system tasks, whose codes are executed. See also col. 5, lines 31 – 36, col. 6, line 59 – col. 7, line 13, resource manager controls resource allocation, and col. 3, lines 46 - 54); and

disassociating the related code with each resource portion of the particular resource that is deallocated for the related code (col. 3, lines 45 – 54, deallocate resources from tasks in order to satisfy system resource requests),

wherein the resource indicator is increased when a resource portion is allocated (col. 6, line 65 – col. 7, line 2, resource indicator showing the currently allocated unit) for the related code.

As per the feature wherein the resource indicator is decreased when a resource portion is deallocated and increased when a resource portion is allocated for the related code, as mentioned above, since the resource indicator shows the current allocated units or an index, it inherently indicates the resource allocation, whether increased or decreased, as claimed.

Regarding **claims 5 and 22**, Culbert did not clearly disclose the step of allocating the resource when resource indicator is below a maximum predetermined threshold and indicating an error and not allocating the resource when the resource indicator is above the maximum predetermined threshold. Nevertheless, Judge discloses of indicating an error when applications try to execute in low or no-memory situations (col. 7, line 66 – col. 8, line 36). As resource allocation requests cannot be immediately satisfied, it is considered obvious to one of ordinary skill in the art that resource is limited and hence having a maximum amount. Furthermore, as resource has been exhaustively allocated, OutOfMemoryError error is generated. This can be understood as indicating an error and not allocating the particular resource, as claimed in claim 5. As a result, it is also considered obvious to one of ordinary skill in the art, to realize the feature in which, OutOfMemoryError would not exist as memory allocation request can be immediately satisfied, hence implying that allocating the particular resource to the related code is an obvious fact when the resource indicator is below a maximum predetermined threshold.

Therefore, it is considered obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate this feature to Culbert's invention so that resource can be better managed for efficiency purposes.

Regarding **claim 6**, see citation above in claim 5 regarding OutOfMemoryError exception.

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Regarding **claim 7**, Culbert did not disclose the related code is disassociated through a garbage collection procedure. Nevertheless, Judge discloses the garbage collector reclaiming the memory (col. 7, line 66 – col.8, line 19, lines 43 – 52 and col. 9, lines 41 – 51). Therefore, it would have been obvious for one having an ordinary skill in the art, at the time the invention was made to incorporate this feature to Culbert's invention so that the additional allocation request can be satisfied.

Regarding **claims 8 and 23**, the examiner takes an Official Notice that the particular resource is selected from a group consisting a memory usage, open file usage, open socket usage, and monitor usage are considered well-known in the art. It would be obvious for one of ordinary skill in the art to consider including memory usage, open file usage, open socket usage, and monitor usage as the resources so that additional resources can be available for use in the computing environment.

Regarding **claim 9**, Culbert further discloses a method as recited in claim 8 wherein the resource indicator indicates a percentage of the particular resource that is utilized by the related code (col. 8, lines 3 – 18, 1% CPU utilization).

Regarding **claims 13 and 26**, Culbert further discloses a method as recited in claims 1 and 20 wherein the particular resource is CPU usage or network usage (col. 8, lines 11 – 18, CPU consumption is resource usage).

Regarding **claims 14 and 27**, Culbert further discloses a method which associates a threshold with a particular resource and the related code (fig. 2, resource master list, resource indicator, and max units, all of which means resource indicator with max units for each resource). However, Culbert didn't clearly show the step of indicating that the related code's priority for CPU usage is decreased when the amount of resource usage of the particular resource

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by the related code exceeds the threshold. Instead, Culbert shows that when the resource is constrained and tasks have difficulty accessing the needed resource, the resource manager must decide whether to lower the available resources for current tasks or fail the task allocation request (col. 9, lines 15 – 20). This obviates the claimed feature in which code's priority for usage is decreased when the resource is not available (exceeds the threshold).

Regarding **claims 15 and 28**, Culbert further discloses a method which associates a second threshold with a particular resource and the related code (col. 8, lines 1 – 18: minimum resource utilization configuration, col. 3, lines 46 – 54 and line 66 – col. 4, line 3). However, Culbert didn't clearly show the step of indicating that the related code's priority for CPU usage be boosted when the amount of resource usage of the particular resource by the related code drops below the second threshold. Instead, Culbert shows that a minimum resource utilization specification level for the tasks need to be maintained (col. 8, lines 5 – 9). This obviates the claimed feature in which code's priority for usage be boosted when the resource utilization is below the minimum specification (below the threshold) to avoid task termination and to optimize system performance.

Regarding **claims 16 and 29**, Culbert did not disclose the related code configured to be executed on behalf of an applet in the form of threads. Nevertheless, Judge discloses of related code executes in the form of threads (the application object creates a new thread: col. 12, lines 16 – 40 and 7) and the applications can be executed within a Java-enabled Web browser with embedded Java applet (Java applet: col. 3, lines 22 – 37) . Therefore, it would have been obvious for one of ordinary skill in the art, at the time the invention was made to implement Culbert's related code with the embedded Java applet to take advantage of the object linking and embedding feature.

Regarding **claim 17**, Culbert discloses a method for managing resource usage of a particular resource by a set of related code (fig. 4, codes executed as tasks), the method comprising:

associating a resource indicator (fig. 2, resource indicator 220, col. 6, line 63 – col. 7, line 2,) with the related code (resource manager 170, col. 6, lines 51 – 58) that indicates an amount of resource usage of the particular resource by the related code (col. 6, line 63 – col. 7, line 2, maximum number of allocable units, 230, and the currently allocated units 240); and updating (col. 7, lines 20 – 27, updates the usage value) the resource indicator when the related code increases or decreases its collective resource usage of the particular resource (col. 11, lines 36 – 44, memory use increases).

Regarding **claim 18**, Culbert further discloses the resource include memory usage and CPU usage (col. 7, lines 2 – 6). However, Culbert did not clearly mention the network usage as further limited as claimed. Nonetheless, the reference of Judge readily discloses of a network computer system (figs 1 and 2, and col. 2, lines 29 – 42, col. 3, line 16 – col. 4, line 9). Therefore, it would have been obvious for one of ordinary skill in the art, at the time the invention was made, to incorporate this feature to Culbert's invention so that it can be operated in the network environment.

Regarding **claim 19**, the examiner takes an Official Notice that resources including open file usage and open socket usage are considered well known in the art. It would be obvious for one of ordinary skill in the art to consider including file usage and socket usage as the resources so that additional resources can be available for use in the computing environment.

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6. Claims 10 – 12, and 24 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Culbert (U.S. Pat 5,838,968) in view of Judge et al (U.S. Pat. 6,430,570, hereafter referred to Judge) and further in view of Mayle et al. (U.S. Pat. 6,182,022, hereafter referred to Mayle).

Regarding **claims 10 and 24**, although Culbert and Judge disclose a method as recited in claims 8 and 23, they did not clearly teach of the additional limitation as claimed. Nevertheless Mayle teaches the step of:

associating a plurality of thresholds with a the particular resource and the related code (col. 3, lines 7 – 11, current normal threshold curve, service level maximum threshold, and minimum threshold. Col. 8, lines 20 – 25, percent system utilization being monitor); and

notifying a registered resource callback when the amount of resource usage of the particular resource by the related code exceeds a first one of the thresholds (col. 4, lines 16 – 19, receive an event notification when an attribute exceeds its corresponding current normal threshold, col. 4, lines 36 – 52, , current normal threshold 304 is recalculated periodically. Fig. 3, collected metric 308 exceeds current metric threshold 304 during T1 period).

Therefore, it would have been obvious for one of ordinary skill in the art, at the time the invention was made, to incorporate these features to Culbert and Judge's invention so that system administrator is able to identify those periods of time when the collected metric for a particular attribute (resource) is outside the boundary of the particular attribute current normal operating range (col. 4, lines 40 – 44).

Regarding **claims 11 and 25**, although Culbert Judge disclose a method as recited in claims 8 and 23, he didn't clearly teach of the additional limitation as claimed. Nevertheless, the reference of Mayle further teaches the step of:

notifying a registered resource callback when the amount of resource usage of the particular resource by the related code drops below a second one of the thresholds that has a different value than the first threshold (col. 4, lines 16 – 19, receive an event notification when an attribute falls short of its corresponding current normal threshold, col. 4, lines 36 – 52, current normal threshold 304 is recalculated periodically. Fig. 3, collected metric 326 drops below current metric threshold 304 during time T3 period which has a different value than the first threshold during T1 period).

Therefore, it would have been obvious for one of ordinary skill in the art, at the time the invention was made, incorporate this feature to Culbert and Judge's invention so that system administrator is able to identify those periods of time when the collected metric for a particular attribute (resource) is outside the boundary of the particular attribute current normal operating range (col. 4, lines 40 – 44).

Regarding **claim 12**, although Culbert and Judge disclose a method as recited in claim 8, he didn't clearly teach of the additional limitation as claimed. Nevertheless, the reference of Mayle teaches the step of:

notifying a registered resource callback when the amount of resource usage of the particular resource by the related code drops below the first threshold (receive an event notification when an attribute falls short of its corresponding current normal threshold, col. 4, lines 16 – 19, current normal threshold 304 is recalculated periodically, col. 4, lines 36 – 52, fig. 3, collected metric 309 drops below current metric threshold 304 during time T1 period).

Therefore, it would have been obvious for one of ordinary skill in the art, at the time the invention was made, incorporate this feature to Culbert and Judge's invention so that system administrator is able to identify those periods of time when the collected metric for a particular

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attribute (resource) is outside the boundary of the particular attribute current normal operating range (col. 4, lines 40 – 44).

Conclusion


7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. Application Publication 2003/0131141 A1 (see pages 3 - 4, paragraphs 0078 – 0079, 0081, page 6, paragraph 0083 – 0084, page 6, paragraph 0087, page 8, paragraph 0092, page 9, paragraph 0100, page 10, paragraph 0108, page 11, paragraph 0109).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilian Vo whose telephone number is 703-305-7864.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Lilian Vo
Examiner
Art Unit 2127

lv
November 3, 2003


WILLIAM GRANT
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100
11/12/03